AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

" *O fortunatos nimium sua si bona norint*
" *Agricolas.*" . . . . . VIRG.

VOL. III. BALTIMORE, FRIDAY, APRIL 27, 1821. NUM. 5.

AGRICULTURE.

PISÉ,

Or the Art of Building strong and durable Walls, to the Height of several Stories, with nothing but Earth, or the most common Materials. Drawn up and presented to the Board of Agriculture, by Henry Holland, *Esq.*

[*Concluded from No. 4, page* 29, *volume IV*]

Of Pisé and its Origin.

CHAPTER X.

Experiments to ascertain the qualities of any earth.

First experiment.—Take a small wooden tub or pail without a bottom, dig a hole in the ground of a court or garden, and at the bottom of that hole fix a piece of stone, flat and level; place your tub upon the stone, fill around it the earth that has been dug out to make the hole, and ram it well, that the tub may be inclosed, to prevent its bursting. Then ram into the tub the earth you mean to try; putting in at each time, about the thickness of three or four finger's breadths; when this is well rammed, add as much more, and ram it in the same manner, and so the third and fourth, &c. till the earth is raised above the brim. This superfluous earth must be scraped off extremely smooth, and rendered as even as the under part will be, which lies on the stone.—Loosen with a spade the earth around the tub, and you will then be able to take it out, and with it the compressed earth that it contains; then turn the tub upside down, and if it is wider at the top than at the bottom, as such vessels usually are, the pisé will easily come out, but if it should happen to stick, let it dry in the air about twenty four hours, and you will then find that the earth is loose enough to fall out of itself. You must be careful to cover this lump of pise with a little board; for though a shower of rain, falling in an oblique direction, will not injure it, yet it may be a little damaged, if the rain falls perpendicular, and especially if it remains upon it. Leave the lump exposed to the air, only covered with a board or flat stone, and if it continues without cracking or crumbling, and increases daily in density and compactness as its natural moisture decreases, you may be sure that the earth is fit for building.—But you must remember, that it is necessary that the earth employed should be taken from a little below the surface of the ground, in order that it may neither be too dry nor too wet; it must be observed also, that if the earth is not well pressed around the outside of the tub before it is filled, though the hoops were of iron, they would burst, so great is the pressure of the beaten earth against the mould, of whatever size it may be.

Second experiment.—This trial may be made in the house. Having brought from a field the earth you want to try, press it in a stone mortar, with a pestle of wood, brass or iron, (the latter is best,) or with a hammer, fill the mortar above the edge, and then with a large knife, or some other instrument, take away the superabundance of earth even with the brim. If you then find that the earth will not quit the mortar, you must expose it to the sun, or near a fire: and when it is sufficiently dry, it may be taken out without difficulty, by turning the mortar upside down on a flat stone, or on the floor. It will have the shape of the mortar, and if exposed as above directed, will shew the quality of the earth.

Third experiment.—Press with the end of a stick or cane, your earth in a little box, round which you had better first tie a piece of packthread, lest it should burst in the operation; when you have filled it above its brim, cut off the overplus with a knife; you will undoubtedly be obliged to break the box to get it out, unless you had rather wait, and let it dry in the air, in the sun, or before a fire. It will take the exact form of a box, be it either round, square, or oval; if your earth be red, or any other colour, that which is inclosed in the box will still remain the same.

It is not improper to remark, that the colour of the earth neither adds to, nor diminishes, the goodness of the pise, therefore every proprietor may be at ease on that head.

An experiment which may be made at any time.—Every person in walking on this ground may make little balls of earth, and press them as tight as he can between his hands. If he brings them home and puts marks on them, he will by that means know the quality of every piece of land, and also be a judge of the mixture it will be necessary to make.

CHAPTER XI.

On the preparation of the earth for building.

All the operations of this art are very simple and easy; there is nothing to be done but to dig up the earth with a pick-axe, break the clods with a shovel, so as to divide it well, and then lay it in a heap; which is very necessary, because as the labourers throw it on that heap, the lumps of earth and large stones roll to the bottom, where another man may break them or draw them away with a rake. I must observe, that there should be an interval of about an inch and a quarter between the teeth of the rake, that the stones and pebbles of the size of a walnut, or something more, may escape, and that it may draw off only the largest. If the earth that has been dug has not the proper quality, which is seldom the case, and that it is necessary to fetch some better from a distance, then the mixture must be made in this manner: one man must throw one shovel full of the best sort, while the others throw five or six of the inferior sort on the heap, and so more or less according to the proportion which has been previously ascertained. No more earth should be prepared than the men can work in one day, or a little more, that they may not be in want; but if rain is expected, you must have at hand, either planks, mats, or old clothes to lay over the heap of earth, so that the rain may not wet it; and then as soon as the rain is over, the men may resume their work, which, without this precaution, must be delayed; for it must be remembered, that the earth cannot be used when it is either too dry or too wet; and therefore if the rain should wet it after it has been prepared, the men will be obliged to wait till it has recovered its proper consistency; a delay which would be equally disadvantageous to them and their employer. When the earth has been soaked with rain, instead of suffering compression, it becomes mud in the mould; even though it be but a little too moist, it cannot be worked: it swells under the blows of the rammer, and a stroke in one place makes it rise in another. When this is the case, it is better to stop the work, for the men find so much difficulty that it is not worth while to proceed. But there is not the same necessity of discontinuing the work when the earth is too dry, for it is easy to give it the necessary degree of moisture; in such a case it should be sprinkled with a watering pot, and afterwards well mixed up together; it will then be fit for use.

It has already been observed, that no vegetable substances should be left in the earth; therefore in digging, as well as in laying the earth in a heap, great care must be taken to pick out every bit of root, great and small, all sprigs and herbs, all bits of hay and straw, chips or shavings of wood, and in general every thing that can rot, or suffer a change in the earth.

CHAPTER XII.

On the bond timber to be used in the buildings of pise.

To make good walls, it is not sufficient that the earth be well beaten, we must also learn to unite them well together. In houses of brick or stone, to consolidate their parts, they make use of angles and binders of free stone, and of iron braces, and cramp irons, which are very expensive; but here the binders cost very little; they consist only of thin pieces of wood, a few cramps and nails, and these are sufficient to give the greatest stability to buildings of pisé.

The first course A, see plate IV figure 15, being laid on the front and inner walls of a house, we begin the second; and if for the inferior course the mould has been directed from A to E, it must, for this second, be directed from A to F, as has been explained, see Plate VI. figure 18. But before this second course is begun, lay at the botton of the mould a board about five or six feet long, resting on the angle A, and extending lengthwise towards B. This board must be rough, as the sawyers have left it, something less than an inch thick, and in breadth about eight, nine, or ten inches, so that there may remain on each side four or five inches of earth, if the wall is eighteen thick: by this means the board will be entirely concealed in the body of the wall. When thus placed neither the air, nor damp can reach it, and of course there is no danger of its rotting. This has been often proved by experience, as in taking down old houses of pisé such boards have always been found perfectly sound, and many that had not even lost the colour of new wood. It is easy to conceive how much this board, from the pressure of the work raised above it, will contribute to bind together the two lengths A and B, and to strengthen the angle A E; but this is not all, it is useful (particularly when the earth is not of a very good quality) to put ends of planks into the pisé after it has been rammed about half the height of the mould. These ends of planks should be only ten or eleven inches long, to leave as before a few inches of earth on each side of the wall, if it is eighteen inches thick; they should be laid crosswise (as the plank before mentioned is laid lengthwise) over the whole course, at the distance of about two feet from one another, and will serve to equalize the pressure of the upper parts of the works on the lower course of the pisé.

The boards abovementioned need only be placed at the angles of the exterior wall; and in those parts where the courses of the partition walls join to those of the exterior wall; the same directions that have here been given for the second course, must be observed at each succeeding course, up to the roof. By these means the reader will perceive that an innumerable quantity of holders or bindings will be formed, which sometimes draw to the right, sometimes to the left of the angles, and which powerfully unite the front walls with those of the partitions: the several parts deriving mutual support from one another, and the whole being rendered compact and solid.

Hence these houses made of earth alone, are able to resist the violence of the highest winds, storms and tempests. The height that is intended to be given to each story being known, boards of three or four feet in length should be placed before hand in the pisé, in those places where the beams are to be fixed, and as soon as the mould no longer occupies that place, the beams may be laid on, though the pisé be fresh made; little slips of wood, or boards, may be introduced under them, in order to fix them level.—The beams thus fixed for each story, the pisé may be continued as high as the place, on which you intend

continued as high as the place on which you intended to erect the roof.

CHAPTER XIII.

On building walls for enclosures.

With respect to walls for enclosures of parks, gardens, yards, &c. the mould must be fixed in an angle, or against a building, if the wall is to reach so far, and the workmen must proceed from thence to the other extremity of the wall—and when they have finished the first course, they must raise the mould to make the second, returning to the same place where they began the first.

But when a very great inclosure is to be made, as for instance a park wall, then, for the sake of speed, it is necessary to set several moulds and men to work. In such a case, a mould should be placed at each end, & the number of men be doubled; they will work at the same time, and meet in the middle of the wall, where they will close the first course: after which, each set of men raise their mould to make the second, and both setting out from the middle continue working, in opposite directions, towards the ends where they first began.

CHAPTER XIV.

On the time and labour necessary in building a certain quantity of pisé.

Besides the advantages of strength and cheapness, this method of building possesses that of speed in the execution. That the reader may know the time that is required for building a house, or an enclosure, he need only be told, that a mason used to the work, can, with the help of his labourer, when the earth lies near, build in one day, six feet square of the pisé. If two men can build in one day six feet square, it is evident that six men, which is the necessary number to work the mould (viz. three in the mould, and three to dig and prepare the earth,) will build in the course of sixteen days, or three weeks at most, such a house as is delineated in Plate V figure 16 and 17, containing 288 square feet of wall: a very short time therefore is sufficient for aman to build himself a solid and lasting habitation. These facts which have been proved by numberless instances, afford a proportion by which every one may determine the time that his house or wall will take in building, having first ascertained the number of feet it will contain. Thus, if he wishes to have a wall 540 feet long, and six feet high, it will be finished in one month with one single mould, and six men—but if he doubles both moulds and men, it will be done in fifteen days. These are simple but necessary instructions, for they will prevent the inconvenience to which many are exposed, from having the completion of their building protracted beyond the time that they originally expected. All persons who wish to build, may now contract with the builder that the work shall be finished on such a day; or that he shall indemnify them for all the losses which they may incur from his failure to make good his engagement.

CHAPTER XV.

On the outside covering.

The outside covering of plaster, which is proper for pisé walls, is quite different from that which is made use of on any other walls; it is necessary too, to take a proper time for laying it on.

If a house of pisé has been begun in February, and completed in April, the covering may be laid on in the autumn, that is to say, five or six months after it is finished; or if it is finished in the beginning of November (at which time the masons generally give over working) it may be laid on in the spring. In this interval the walls will be sufficiently dried; but it must not be imagined that it is the drought or cold that extracts the moisture from an earthen wall; it is only the air, and particularly the north air, which is of itself sufficient, either in summer or winter, to dry a pisé wall thoroughly. If you happen to lay the plaster over them before the dampness is entirely gone, you must expect that the sweat of the walls will cast off the plaster.

To prepare the walls for plastering, indent them with the point of a hammer, or hatchet, without being afraid of spoiling the surface left by the mould; all these little dents must be made as close as possible to each other, and cut in, from top to bottom, so that every hole may have a little rest in the inferior part, which will serve to retain and support the plaster.

To do this, the masons must make a small scaffold in the holes which the joists of the mould have left (see those holes in Plate VI and VII. figure eighteen and nineteen.) This scaffold may be made in a few minutes; and when, with the assistance of it, they have indented the upper parts of the house, they must run a stiff brush over the indented surface to remove all dust or loose earth. The walls thus prepared, they may lay on the plastering; but before the manner of doing this is described, it should be observed, that there are two kinds of plaster that may be used in the pisé; rough cast, and stuccoing. Rough cast consists of a small quantity of mortar, diluted with water in a tub, to which a trowel of pure lime is added, so as to make it about the thickness of cream. Stucco is nothing more than poor mortar, which the labourers make up in a clean place near the lime pit, and carry it to the masons on the scaffold.

Such is the manner of preparing the coverings; let us now see the manner of employing them.

For rough casting, one workman and his labourer are sufficient; the workmen on the scaffold sprinkles with a brush the wall he has indented, swept, and prepared; after that he dips another brush, made of bits of reed, box, &c. into the tub which contains the rough cast, and throws with this brush the rough cast against the wall; when he has covered, with as much equality as possible, so much of the wall as is within his reach, he lowers his scaffold, and stops up the holes of the joists with stones, or old plaster, &c. does as before, and continues lowering his scaffold in the same manner till he comes to the bottom of the house.

This rough cast, which is attended with so little trouble and expence, is notwithstanding the best cover that can be made for pisé walls, and for all other constructions: it contributes to preserve the buildings, and though not beautiful, has the recommendation of being attainable by people in moderate circumstances. It is the peculiar advantage of these buildings, that all the materials they require are cheap, and all the workmanship simple and easy.

The process of stuccoing is very different; two workmen and two labourers are requisite, the two workmen being on the scaffold, and one of the labourers making up the mortar, while the other carries it with water, and serves the workmen. One of the workmen holds in his right hand a trowel, and in the other a brush, with which he sprinkles the wall, having before hand indented and swept it; after that, he lays on a few trowels full of stucco, which he spreads as much as possible with the same trowel, and then he lays on more, and thus continues his work. The second workman has also in his left hand a brush, and in his right a small wood float; he sprinkles water over the mortar that his partner has spread, and rubs over that part he has wetted with his wood float.

The reader easily perceives the progress of this work; the first workman lays on the plaster, and advances gradually, the second follows and polishes; one labourer makes up the stucco, the other carries it and serves the workmen. By this progress the smoothest, finest, and cheapest plastering is made.

At the same time that the plaster is laid on, it may also be whitened by the use of lime alone, which is also an object of economy, since it saves white lead, &c. For this purpose dilute lime in a tub of very clear water, and let a labourer take some of it in a pot, and carry it to the workmen, who must lay it on with a brush—this, as well as all other colours, adheres to the plaster, and never falls, although it is used with water only, without size or oil. This is to be attributed to the precaution of laying on the colour whilst the plaster is still wet; as it grows dry, it incorporates mineral colours with its own substance, and makes them last as long as itself. This is on the principles of fresco colouring or painting.

Lime is of very general utility; it is used in building, in plastering, and in white-washing—and it will appear from the chapter on painting, that for that purpose also, it may be employed with advantages.—Those who intend to build, therefore, ought always to have a store of it by them, and it should be slacked a long time before it is used, to prevent crevices and blisters, which, without this precaution, will arise in the plaster, and give it so disagreeable an appearance, that it will be necessary to do the work over again. The reason of it is this, there will always remain in the lime some particles that have not been slacked in the pit; all the stones are not entirely reduced to lime in the kiln, and those stones will resist the action of the water for a time, and will burst from the plaster after it has been laid, leaving the crivices abovementioned. This inconvenience will not happen if the lime, after being slacked, is left to stand some time before it is used. Indeed it will not be amiss to let it lie by a whole year.

CHAPTER XVI.

On painting in Fresco on the outside covering.

That kind of painting which is known by the name of Fresco, is the most beautiful and cheapest of any, and it is that which the French author recommends for the decoration of pisé buildings. The most celebrated painters were very partial to it, and Rome furnishes many excellent models, which should engage us to restore it from that neglect and disuse into which it has, without reason been suffered to fall.

Whoever wishes to have his house painted in Fresco, must have a painter ready, and place him on the scaffold with the workmen. The latter lay on the mortar, as before directed, and are attentive to spread it very even, so receive the paint. When they have finished one part, they suspend their work, to give the painter time to do his; for if they continued working on, the painter, who cannot go on as fast as they, would find the mortar too dry, and the colours would not incorporate with it. It is absolutely necessary, that the plasterer's work should be subordinate to that of the painter—it is sometimes so arranged that the latter works, while the former are gone to their meals—and when in his turn he retires from work, he traces out the part that the plasterers are to cover during his absence, forseeing how much he shall be able to paint in the course of the day. All these precautions are taken, to prevent the too speedy drying of the mortar, and to seize the proper time to lay on the colours while it is fresh. Although this work does not profess to teach the art of painting in Fresco, it may perhaps be found to contain directions sufficient for the execution of it in an ordinary manner.

To make the colour, you mean to give to a country house, dilute in a large tub, a sufficient quantity of lime which has been slacked a long time—you must also dilute in another tub or pot, some ochre, either yellow, red, or any other mineral colour you please, but always in very clear water; after which pour a little of the colour into the large tub, and stir it about with a stick, so as to mix it well with the lime—take some of the colour on a brush, and try it on a board or wall—if it is too deep or too light, add fresh lime or colour from the tub, and by repeated trials you will bring it to the tint you wish to give the house. The colour being made for the body of the house, the frames of the doors and windows are next to be considered, and a new colour chosen, to distinguish them from the rest of the front. If the body of the house is painted yellow, or of a pale red, the angles and frames may be white or blue—if it is grey, they may be yellow or deep red, and in all cases it will be a very easy matter to find the most suitable colours.

The plasterers are equal to painting the fronts of houses in a common way—but when builders or proprietors wish to have them decorated in a superior manner, they must call in a painter, whose business it is to do it.

These paintings in Fresco are more lively and brilliant than any other, because the colours are not deadened by size and oil, which do not enter into their composition—their effect is surprising, and that pleasure may be had at a little expense.

NOTE.—The plaster proper to serve as a ground

for Fresco painting or colouring, is made of one part lime, and three parts clean, sharp, washed sand ; this sort of painting has lately been executed with great success at Woburn Abbey, and some other places.—It is not very usual to slack the lime in England so long before it is wanted, but it is an excellent practice, especially if it be wood burnt.

On the mode of building in France, termed Pisé ; being the substance of a letter from the Rev Mr. Jacour, an emigrant clergyman now in London, to the under secretary of the Board of Agriculture ; dated London, 14th June, 1797.

Sir,

My having been an inhabitant for some time of the town of Monthrison, capital of the Forêts, enables me to give you some information concerning the mode of building houses with earth, &c.

The church was the most remarkable in this style of building ; it is about eighty feet long, forty feet broad, and fifty feet high ; the walls built in *pisé*, eighteen inches thick, and *crepe*, or rough cast on the outside with lime and sand. Soon after my arrival, the church, by some accident was destroyed by fire, and remained unroofed for about a twelve month, exposed to rains and frost. As it was suspected that the walls had sustained much damage, either by fire or the inclemency of the season, and might fall down, it was determined to throw them down partially, and leave only the lower parts standing ; but even this was not done without much difficulty, such was the firmness and hardiness these walls had acquired, the church having stood above eighty years : and all the repairs required, were only to give it on the outside every twelve or fifteen years, a new coating of rough cast.

A house for a single family is generally finished in about a fortnight. The following is the method I have seen in practice.

The earth is pounded as much as possible, in order to crumble any stones therein ; clay is added thereto in a small quantity, about one-eighth part. It is all beaten and mixed up together by repeated blows with a mallet about ten inches broad, and ten or fifteen inches long, and two inches thick. The earth being thus prepared, and slightly wetted, the foundation of the house is dug for—this is laid with stone, and when it is about one foot high above the surface of the ground, planks are arranged on each side, which are filled with earth intended for the wall—this is called *pisé* in the dialect of that country It is strongly beaten and this method is continued successively all round the building. The walls have more or less thickness, according to the fancy of the owner—I have seen them of six and of eighteen inches thick. Some builders intersperse from space to space, a thin layer of lime. If several stories are intended in such erections they do not fail to place beams to support the floors before they build higher—the windows and doors are attended to in the same manner. Of such buildings I never saw any consisting of more than two stories at most—generally they have but one, besides the ground floor. When the building is thus finished, it is left for some time to dry—then such as wish to make the building more solid and durable, give it a rough cast coating on the outside with lime and sand. This is what I have observed during a residence of three years in the town of Monthrison. I should be happy if this detail should afford the slightest information to the generous nation which has received us with so much goodness.

I am, &c.

JAUCOUR,

Rector of St. John's, La Rochelle.

The Island of Madeira,

ITS WINES, VINES, GEOLOGICAL PHENOMENA, &c. &c. &c.

Communicated for the American Farmer.

The island of Madeira was not known to the ancients, and some accounts attribute its discovery to the accident of two lovers flying from persecution, having been stranded on its coast. The Lady died a short time after the shipwreck, and the faithful swain inconsolable for her loss, survived her only a few days. The companions of their misfortune left the island in a boat constructed from the wreck ; but were captured on the Coast of Africa by a Salee rover. In Africa among their fellow sufferers, their shipwreck, the melancholy fate of the lovers, and the extreme fertility and beauty of the Island, were the constant theme of their conversation. On the release of one of them, who was a Portuguese, the story was told to Prince Henry of Portugal and an expedition was fitted out in Lisbon, which took possession first of Port Santo, and afterwards of Madeira in 1419.

The Island of Madeira is 120 miles in circumference, 45 miles long, and its extreme breadth 15 miles, and least 8½. The Pico de Ruivo, the highest point of the island, is elevated 8953 feet above the level of the sea. On approaching the Island from the sea it presents a variegated and beautiful appearance.—The sides of the hills are cloathed with vines, and flowering shrubs, and the Ravines, and mountains covered with forest trees ; streams of water are seen bursting from between the rocks, and falling into the ocean, and the prospect is terminated by a mass of mountains, and by the lofty summit of the Ruivo rising from the clouds, which hover round its base.

Funchal is situated in a bay at the foot of an amphitheatre of hills, which rise abruptly from the sea. The town is neatly built, and contains twenty thousand inhabitants.

The Bay of Funchal is a very wild and insecure roadstead, being protected only from the North and North East winds. In the winter, the South and South West winds blow with great violence, a heavy swell rolls in, and ships are frequently obliged to slip their cables and put to sea. During the North East winds, which are most prevalent in summer, there is invariably what the inhabitants call an invat, that is, a counter current of wind blowing fresh from the West. The landing is a steep beach and the boats used to unload the ships are drawn up high and dry by means of a windlass, worked by oxen. The wine is carried off in lighters, and men are constantly employed swimming and floating the pipes through the surf, which at times runs very high. Funchal is situated in about the same latitude as Charleston, in South Carolina, but enjoys a much milder climate. In summer the thermometer fluctuates between 70° and 80° of Fahrenheit, and in winter between 65° and 57°. The East wind which blows from the coast of Africa, sometimes raises the mercury to 90° and even to 100°. It is the Sirocco, and the parching feverish effect of this wind is well known. It visits the Island but rarely, and seldom lasts longer than forty-eight hours. In all mountainous countries the height above the level of the sea, determines the temperature, and on ascending the hills, two miles from Funchal, I have remarked a difference of 10 degrees of Fahrenheit ; but during the prevalence of the East wind the heat is most intense upon the mountains. The heights above the town are ornamented with beautiful country seats, to which the inhabitants retire during the summer months. Snow falls on the mountains in the months of January, February, and March, and the rains during those months are frequent and heavy.

In 1803 some reservoirs on the mountains burst, or as the people of the island say, a water spout, the torrents swelled, and overwhelmed every thing in their course. The river of Santa Luzia, which flows through the town in a deep ravine, overflowed, destroyed the bridges, and swept away all the buildings on its banks. 300 persons perished on this occasion.

The whole Island appears to have been of Volcanic origin. The rocks which form the base, are all of compact Lava, and a projecting rock which forms the W. point of the bay, is a mass of Lava, and resembles the natural mole produced at Catania by a late eruption of Ætna. Basaltes of Piedra viva are seen on the East of the island, and some limestone is found in the interiour. The houses are for the most part built of Lava, and the enclosures near the coast are of Lava and Scories. The soil on the South of the island is of decomposed Scories, and Volcanic sand, impregnated with Sal-ammoniac, which gives the hills a reddish tint, and is one cause of the excellence of the wines, as appears from those produced at the foot of Vesuvius, called Lacrymæ Christi, and the rich wines of Catania, made from the Vineyards on the sands of Mount Ætna. Every stone that I saw bore evident marks of fusion, and the mountains wherever they have been cut through to make roads, appear in horizontal strata of Lava—and Scories, denoting the formation of the Island by successive eruptions.

The Sugar Cane was formerly much cultivated, and the Sugar of Madeira was highly esteemed—the cultivation of the vine has now the preference, and the Sugar plantations on the South of the island are not very extensive.

The Vine was originally brought from Cyprus—it is planted from cuttings in straight rows ; a southern aspect is sought for, and is necessary to making the best wine. The labourer standing with his back to the South, opens a trench about four feet deep, and with his hoe draws the earth up in ridges ; the cuttings are then planted in this inclined plane at from 6 to 12 inches apart, according to the number of plants ; if when they have taken they are found to be too close, they are afterwards thinned.—After they begin to sprout, the earth from the second ridge is thrown into the first trench, and so on successively, leaving the vine inclining to the S. and buried nearly 6 feet. I have likewise seen cuttings planted by burying the centre, and leaving both extremities out of the earth ; where the land is dry stones are thrown into the trench. Great care is taken to prune off the unhealthy sprouts When the plant is sufficiently grown to require support, a cane lattice work is erected on posts, higher on the N. side, and inclining gradually to the S. which gives an equal exposure to the sun, and throws off the rain.—The lattice work, which is made of our swamp cane, is raised three or four feet from the ground, and the vine is drawn through and laid upon it. This method I have never seen practised elsewhere.

In Italy and in the South of France the vines

are festooned on poles, or trained from tree to tree, and in the North they cling to poles stuck perpendicularly in the earth; in Madeira they are exposed on a flat extensive surface and must ripen more equally. The planting takes place immediately after the vines are pruned in January or February, and the longest cuttings are chosen for that purpose. It is generally three years before any benefit is received from a new Vineyard, and six before it comes to perfection.

Bad vintages are occasioned either by a long continuance of foggy weather in April, May, and June; E. or Sirocco winds in July and August, or untimely and heavy rains in August and September.

The lands are in possession of Morgados or large land holders, and are generally entailed. The farmer holds his tenure on condition of paying half the produce, which added to the exaction of tithes, the presents to the curates, and high price of provisions, has diminished the cultivation of the Vine, and raises South wine when first brought to the merchant at Funchal to $120 the pipe.

The vintage commences on the south of the island early in September, and lasts to the middle of October. Great care should be taken to pick the grapes clean, by cutting off the unripe, or rotten fruit. The grapes are gathered when full ripe, and after some few have become raisins. They are put into a square vat pierced with holes not large enough to let the skin of the Grape fall through, they are then stamped by men, and drained into a receiver, the refuse is afterwards pressed. After a slight fermentation the wine is drawn off into casks, or sent to town in goat skins, on mens' shoulders, or in barrels on Asses and Mules. There is a great variety of Grapes, and they are all mixed to make the common wines. The Tinta, a very high flavoured red wine, is made from the Negromole and Verdella, the Sercial from a grape brought orginally from the banks of the Rhine; and the Malmsey from the Malvasia Grapes, which are kept on the vine until two thirds of them become raisins, it is generally sweetened with sugar. The Buas is the best Grape, and the wine made exclusively from the grape is of the highest flavour.

When the Wine dealer receives the Wine if it be in must, or perfectly new, it is put into casks and worked for several days, with a sort of paddle introduced at the bung hole. It is then left to settle, and when the fermentation has ceased, and the new wine become clear, it is drawn off into casks, containing from 4 to 800 gallons, and from five to ten gallons of Brandy added to 120 of Wine. Only the best French brandy is used, and as it costs in Madeira more than wine, it is used as sparingly as possible.

The wine is then left to ripen, each quality separate. When drawn off into pipes to be shipped, they are mixed according to the judgment of the wine taster, whose skill consists in having observed what wines mix best. It is then finedwith isinglass; an ounce is put into a cask of 110 gallons, and the wine agitated with a paddle, and being left to settle, in a few days it becomes perfectly clear. In order to prepare the pipes, they are kept for some months filled with water—they are afterwards washed with boiling water, and rinced with brandy; a large lighted match of sulphur is then put into the bung hole, and when the pipe is full of smoke, the bung is closed tight until the cask is wanted. The latter part of this process is repeated every time the cask is emptied.

The wines from the North of the Island, and such as are not of the first quality are kept for some months in Estufas, or hot houses to mellow them. They change the temperature by moving then to different floors. The heat of the Estufa is from 90° to 100° of Fahrenheit The produce of the Island seldom exceeds 30,000 pipes—about 15,000 are annually exported, the remainder being consumed in the Island, where it constitutes the common drink of the inhabitants.

The population of Madeira is about 85,000 souls, and although during the late war, they cultivated more wheat, yams, and potatoes than usual, still the produce does not exceed three months supply in the year; the rest is drawn from the United States. The greatest anxiety was expressed for the renewal of our commerce. Fleets appeared from the East, and no interest or curiosity was excited or expressed, whilst a speck on the western horizon was viewed with impatient expectation, and the heights were covered with people eager to distinguish the American colours. [Written immediately after the peace was concluded at Ghent.]

The roads near the town are well paved, and stone bridges are thrown over the water courses. The country is so broken that it presents a constant succession of steep hills, and deep ravines, and the views are diversified and beautiful. The houses of the peasantry are generally cut from the sides of the hills, the back and side being formed from the hill, and the front only built of stone, they are thatched and small. The wild rose, the honeysuckle, the geranium and myrtle, are seen growing with luxuriance in the hedges, the venatica, (lignum klodium) an evergreen of very dark foliage, is very abundant, and grows to a great size in the ravines, and on the sides of the hills the chesnut trees rival those of Sicily. One of these trees measured 40 feet in circumference, not far from Funchall.

I visited the falls of Santa Luzia, a cascade which falls from a height of nearly 800 feet, and which terminates a series of romantic views along the banks of the river. The Coral, and the Jardin, are both within four hours ride of the town. The former is a deep Glen inclosed on every side, and being viewed from a great height presents a prospect of gloomy grandeur. The latter is a fertile and highly picturesque valley.

The finest view to which the attention of a stranger is directed, is that of the Portello, it opens abruptly from an immense height, and commands an extensive prospect of the sea, terminated by the Island of Porto Santo, and immediately beneath lie the port and town of Cruz, the town of Fayal, with a number of farm houses and plantations. On my road to the Portello, I overtook several peasants going to San Antonio da Serra, and on enquiring found, that the Patron Saint of that place was to be removed to another Church, to propitiate him by a solemn procession, in hopes to obtain rain; on my observing that we might then expect rain immediately, no Senor, replied my informer, but the day after tomorrow certainly, for our prayers last three days. And if it did not rain the Saint lost no credit, they would attribute the failure to their own want of merit, and increase their offerings and prayers. I stopped at San Antonio da Serra to see the procession, and to examine an extinguished Crator.

The little Saint, a Doll about two feet long, dressed very fine, was carried by a fat Priest, under a Canopy supported by Friars, who chaunted as they went, preceded by more than a thousand peasants, bearing green boughs, and followed by as many women dressed in all their finery; this motly group winding round the hills afforded a gay and pleasing sight. There are several Saints of great fame on the Island. The most celebrated for her miracles, is our Lady of the Mount. Her Church is situated immediately over the town of Funchal, from whence the view extends over the town and bay, and over all the Southern part of the Island. On my return from visiting her shrine, I met a procession of sailors, toiling up hill, and sweating under the load of a large fore top-sail, which had been offered to our Lady, during the perils of a heavy gale. This is a very common practice of the Portuguese Mariners. The sail is valued and its ransom paid in money.

From want of attention, Leprosy is very common, and as they allow the Lepers to intermarry, it spreads daily.

There is but little game on the island. Patridges, Quails, and Woodcocks are sometimes found, Pigeons are more common. There is a great variety of singing birds, particularly a dark coloured Canary, and the Tinto Negro, a small bird with a very melodious note.

Fish is abundant and good, the red Mullet is highly esteemed, and is of a very fine flavour. The Epicures of Madeira call it the sea woodcock. There, as in all the Portuguese dominions, the fishermen pay to the Crown a tithe of the fish brought to market.

The Pine Apple, Bananna, and Guava are abundant, and all the fruits of Europe come to great perfection on this Island.

From the "Philadelphia Gazette"—and corrected by W. White.

GREAT CATTLE SHOW,

AND

GRAND PROCESSION OF THE VICTUALLERS OF PHILADELPHIA.

It was originally the intention of Mr. Wm. White, and the Victuallers who assisted him in this splendid Show, and enterprising undertaking on the 15th of March last, to have laid before the public a detailed account of all the paraphanalia of the procession; but circumstances have intervened, and so much time has elapsed, as to render it merely necessary to state, for the purpose of information to the country, and to the world, the actual weight of this extraordinary STOCK OF CATTLE.

The following are of the Gough breed,* sixteen in number, fed by Louis Clapier, Esq. at

* This breed come from England; the particular name unknown. The cattle came from Kentucky—they were, 3, 4, and 5 years old—one was 7 years.

his farm, Highlands of Germantown, the weight of which was as follows :—

1320	1360
1388	1440
1436	1428
1280	1428
1348	1384
1248	1284
1250	1332
1448	1288

Average wt. 1347 lbs.

The following mostly selected from common drove cattle—also fed by Lewis Clapier, Esq. and laid in from 750 to 800 cwt. and fattened in 14 months, and were remarkable for their proportion and beauty of figure.

1184	1129
1208	1156
1100	1192
1128	1112

Average—1151 lbs.

The following, fed by George Sheaff, Esq. Highlands of Montgomery, weighed as follows :

1215	1150
1129	1227

Averaging 1180 lbs.

Fed by Mr. Wm. White, Penn Township :

1073	1132
1118	1121

Averaging 1113 lbs.

Fed by Major Pissant, of New-Jersey :

1550

A Calf do. 552, very extraordinary for size and beauty.

A Steer, fed by Philip Lowry, Penn Township, not quite 7 years old, weight 1977 lbs.

Fed by Peter Wager, Esq. of Montgomery Square :

1076	1172
1088	1160

Average 1124 lbs.

Fed by Henry Boraff, Penn Township :

942	1102

Average 1022 lbs.

Fed by Samuel Painter, Delaware county :

1224	1138

Average 1181 lbs.

Amount of fat and suet of the above Cattle, 15,221 lbs. averaging 362 lbs. and and a fraction over of 2½ lbs.

Weight of Hides	5234
Calf skin	50
The tripe of the 42 head	1260

One sheep fed by William Bradley, Moyamensing lbs. 166 } ¾ blood
Rough tallow 29 } Bakewell.

Eight sheep fed by Aaron Clements, (small breed) Philadelphia county—three years old :

956½

Average 119½.

Rough tallow averaged 24 lbs. each.

Ten sheep fed by Samuel West, Delaware county—only two years old : 909½—new Leicester or Bakewell breed.

Average 90 $\frac{7}{100}$

Rough tallow 18 lbs.

7 Kids fed by Wm. White, dressed lamb fashion,	lbs. 284
Rough Tallow,	36
2 Fawns,	160
5 Cub Bears,	516

RECAPITULATION.

Aggregate weight of the above, viz :

Of Beef,	53,024
Fat and Suet,	15,221
Hides,	5234
Calf Skin,	50
Tripe,	1260
Sheep,	2832
Rough Tallow,	396
Kids,	284
Rough Tallow,	36
2 Fawns,	160
5 Cub Bears,	516
Fat,	18
Pork,	3500
Sausages,	4000
Puddings,	200
Total amount,	wt. 86731

The above is the fair, and just enumeration of meat killed by Wm. White, Victualler, assisted by his brother Victuallers ; and exhibited and sold in the Philadelphia Market, on the 15th day of March, 1821. The whole was sold in one day.

FOR THE AMERICAN FARMER.

TOBACCO.

ADVANTAGES OF LOW TOPPING.

Sir—It is somewhat surprising, that, in those parts of Maryland where tobacco has been almost "time out of mind", the only staple, the advantages of low topping should not have been sooner and more justly appreciated.

It can only be accounted for, from that indisposition which "*we gentlemen in the country*" have to innovate upon the established usages of our fathers.

Whatever is valuable in the habits of our ancestors, we are apt to discard, as being too trite and old fashioned for the fastidious delicacy of modern taste ; but we cling with pertinacious attachment to errors which the progressive improvement of the human mind are constantly developing, merely because "our fathers did so before us." The practice *here* has been almost universally to top high, and to suffer the tobacco to continue in the field to give the top leaf an opportunity of making ;—this rarely happens until many of the bottom leaves (which are the best part of the plant) are lost, and when it does, unless in very rich land indeed, the whole plant is but an epitome of what it ought to have been, if topped to a proper height.—It is very well known that *our* broadest leaf tobacco is held in the most estimation in Europe, as well as by our own manufacturers of the article at home.—According to the old, I should have said the present mode of topping high, the proportion of broad leaf, to the whole quantity made, is very inconsiderable. Where the land is good, a few of the lower leaves may stretch out to a tolerable width, but as you approach the top of the plant, each leaf becomes narrower until it terminates in "*tail ends*"—a description of tobacco very well known to the shippers for the heavy refraction which it occasions in the European markets, whenever it can be detected.—Another great, and (now that we are increasing the size of our crops,) serious disadvantage arises from the *delay* which it occasions in the *ripening* of the plant, and the consequent less time allowed for securing the crop before frost. Every planter must know that early housed tobacco cures the best with, or without *fires*. Our seasons are very variable, and it would seem are becoming more so every year. Sometimes we have frost even in Sept.—frequently the first week in October—but I have known, as was the case last year, this inveterate enemy to tobacco not to visit us till late in November. Still the best made, and ripest tobacco will not *cure well*, if housed *late in the season* ; for if *fired*, the weather being cool, and particularly the nights, the house cannot be made hot enough for the process of curing with *safe fires* ; and if not *fired* it cannot have the benefit of the hot sun, and warm dry winds which happen in the less advanced stages of the season : besides, tobacco sometimes frost bites in the house as well as in the field.

The late Governor Bowie and B. Oden, Esq. were, I believe, the first to introduce "*low topping*" in this neighbourhood. When I first saw their toppers at work, I was amazed that they should despoil the plant of so many of its leaves—I could not persuade myself that they did not lose one third of the crop which the land was capable of producing. One advantage even then, with all my prejudice against it, I could discern—there would be no "*tail ends*"—all the leaves must be large, with a small proportion of seconds or trash to the plant. I assure you it was with trembling anxiety and fear, that I ventured for the first time to order the whole of my crop of the last year, topped to between twelve and fourteen or sixteen leaves—but how soon was I reconciled to the experiment when I saw each plant magnifying its size considerably beyond the growth of any former crop.—One of my neighbours walked with me the other day, to a tobacco house, where my people were stripping. We stripped five plants separately, (they were the largest we saw where we were standing) and took them to the house—they were weighed a few days afterwards, and yielded 2¼ pounds.

In the Forest of Queen Ann, where a large proportion of our best tobacco is raised, they top generally to from 20 to 22 and 4 leaves.—Having succeeded by this method of "topping", in acquiring a high character for their tobacco at home and abroad, they cannot believe that the *quality*, or *even the quantity* of their crops will admit of further improvement.—These gentlemen certainly deserve the highest commendation, for the skill, management and industry with which they conduct their farms—but in regard to "topping", they will give me leave to urge they have something yet to learn, *and that something* triffling as it may appear to them, is of essential consequence to the *quantity* and *quality* of our staple.

It is a very gross error into which many of our planters have fallen, that *large tobacco*, (the largest that *we* are in the habit of making) in *our soil and climate*, will not *cure as well* as that of *moderate size*, raised on the same land.—If it has *more leaf*, it has still the *same pro-*

perties—'tis but an increase of a good thing—Let the tobacco be *well made—thoroughly ripe*, and housed in *proper time and manner*, and the objection will be found to be perfectly illusory.

It should be taken as a postulatum, that that *system* of cultivation *is best*, which will give to the *plant*, the *most leaf* of the *best quality*, to the *smallest stalk* with the *least labour*.—That the leaf will be broader, and of course more productive by "low topping" no one will deny—that the quality will be as *good if not better*, every one must admit who will make the experiment,—that the stalk will be smaller, is not only reasonable but certain—and in consequence of the tobacco ripening earlier, it will generally save at least one working, and being housed sooner than it otherwise would be, is removed from that dangerous enemy the horn worm, to destroy which, sometimes engages almost the whole of the planter's attention to the great loss and damage of his crop.

I have said that the *quantity* and *quality* of of our staple was affected by "high topping."

The greatest part of our Maryland tobacco is manufactured at home in cigars, or consumed on the continent of Europe.—That the broad leaf tobacco is best for cigars, is *evident* from the *appearance* of that manufacture itself—and that it is preferred in the European markets is manifest from the preference always given to it, when it can be had of equal quality—In a word every advantage intended by the *customary mode*, may be accomplished by the *proposed one*, with the increased benefit of *making more, and getting more for what you make.*

A PLANTER,
of Prince George's.

MR. JOHN S. SKINNER.

I know that you will scold me for not giving my proper name to the above—but as the method is so contrary to general usage, it would involve me in constant discussion with a set of people who must have time *to see* and correct their errors.

SUBSTITUTE FOR CLOVER IN ANSWER TO X. Y. Z.

In answer to your correspondent, X. Y. Z. in No. 1. of your third volume, as to the best substitute for clover and plaster, advise him to try the Carolina field pea, sowed broad-cast, at the rate of from one to two bushels to the acre, at any time between the 1st of June and 16th of July, the earlier the better, and the poorer the land the more seed to the acre, they should be covered but lightly; say an inch to two inches at most, and after the frost has killed the vines, to plough them in as deep as his soil will admit. If sowed any time in June, the vines, if the peas are of our earlier kinds, will have as many peas ripe on them as will answer for seed the ensuing year, even as far north as Maryland.—In this state (North Carolina) they will have from 5 to 10 bushels to the acre. The peas that have ripened, should be picked for seed, or for eating, before the vines are ploughed in. There is a great variety of these peas—some white, some speckled, some black, others yellow and red. Some ripen earlier and others later, but all affording a fine shade to the land, by their broad leaves and running vines, and may be obtained in any quantities at our sea ports, at from 40 cents to a dollar per bushel. The white kinds are generally sold for the use of our seafaring people, and are higher priced. The black, yellow, and red kinds are gleaned by our fattening hogs and cattle, except what are necessary for seed the ensuing year. Every farmer in this part of the country has a hill of peas, for every hill of corn he plants; and they cover the fields with their vines, thereby contributing, no doubt, to keep the land from being worn out as fast as it otherwise would be. &c.

Copy of a letter from Benjamin B. Cooper, of Cooper's Ferry, New-Jersey, to his friend in the Western Country, on the culture of Mangel-Wurtzel, Ruta-Baga, Cabbage, Potatoes, Peas and Beans, with observations on soiling, fences, &c. communicated for the AMERICAN FARMER, *by the writer, as practical results, more to be relied upon than theories.*

MY DEAR SIR,

In answer to your's, respecting my experiment made in 1820, with Mangel Wurtzel, Ruta Baga, Cabbage, Potatoes, Peas and Beans; I have to observe that, as much had been said by Cobbet, & others, respecting different crops that had been, or might be raised in our country to advantage, I was determined to encounter prejudice, and not to follow the beaten tracts of our country, which enables me to give you a practical result, the prices they are sold at, and amount per acre.

No. 1.—Mangel Wurtzel, per acre,	864	bushels, at 25 cts.		$216 00
No. 2.— Ruta Baga,	do.	648	do. 25 ----	162 00
No. 3.—	do.	do.	do. 25 ----	135 00
No. 4.—	do.	do.	432 do. 25 ----	108 00
No. 5.—Cabbage planted two feet apart in rows three feet, apart give 7,200 to the acre, average about 2 cents each,				144 00
No. 6.—Potatoes,	per acre,	180	bushels, at 30 cts.	54 00
No. 7.—Lady Peas	do.	27	do. 75 ----	20 25
No. 8—White Beans	do.	22½	do. 1 00 ----	22 50

I planted the seed of the several crops in rows three feet apart, taking care at the time to give each an equal quantity of manure; the Mangel Wurtzel, planted on the 15th April: the Ruta Baga as follows, those producing the greatest quantity, on the 20th day of June, the tops were long, the bulbs large and hollow—the turnips stringy when boiled, though eaten greedily by the cattle—those producing the next greatest quantity, on the 10th of July, the tops much shorter than the first bulbs round but few hollow, and keep well, the last planting on the 1st of August, was perfectly sound, better flavoured and preferable for the table. Cabbage planted 15th of June, Potatoes from the 20th to the 25th of May, Peas and Beans the 10th of June. I gave each a fair trial by ploughing and hoeing them in season, in soil of a midling quality, and from their product, I am inclined to believe that in all the old settled counties, particularly in the vicinity of cities, Mangel Wurtzel, Ruta Baga, and cabbage might be raised for stock to a much better advantage than the grain crops so generally cultivated; they would ameliorate the soil rather than exhaust it, produce a great saving in land and fencing, and at the same time improve the condition of their cattle, and increase the quantity of their milk and manure.

To what extent have we practiced our folly in division fences that tend to exhaust rather than enrich our lands? Suppose a farm of one hundred acres is divided into ten acre fields to enable the cattle to tread and graze upon them, what can we expect, but to see the surface made naked by our herds, and become exhausted by a parching sun? Providence gives us a covered surface, and it becomes rich from the dews, frosts, rains, &c. retained on the soil to ameliorate it. But we contend against his enriching treasures by keeping a naked surface and impoverished soil, at great expense of fencing. In this country it is only necessary to have an inclosing fence, and the adjoining landholders have to make one half each. So that but one half of the necessary fence about a farm need be made by the owner. A farm of one hundred acres is nevertheless, usually divided into ten acre lots to ornament the farm, and feed the folly of the owner—the expense of which, in this neighbourhood, is one dollar, a pannel of ten feet, say one dollar and sixty-five cents per rod. Division fences, exclusive of lanes, garden fences, &c. 632 rods amount to $1042 80—interest of which in Jersey, is $72 $\frac{99}{100}$—the perishable loss annually of the fence, much greater than the interest; the expense of labour in keeping fences up to avoid tresspass and loss, equal to either—who then among us cannot get milk, butter and cheese at our doors for half what our fences really cost, and at the same time save principal and enrich the land or soil, since the cattle necessary to be kept may be supported at one fourth of the expense of grazing them, by cultivating roots and cabbage on a part of our farms in the rotation of our crops?

Your's
BENJAMIN B. COOPER.

The value of Mangel Wurtzel, as a food for cattle, compared with other roots and cabbage, and the benefit that will be derived by those who cultivate it for that purpose, may be clearly seen by applying the results of chemical analysis to the quantity of each crop raised per acre, under similar care and circumstances by Mr. Cooper. He has given us the *money value* of the several crops, which is an interesting and acceptable view of them—but as this will be different at other places, or in the same place at different times, we have thought it advisable to append a calculation as to their *nutritive value*; inasmuch as this will offer an unvarying and more general argument.

Sir H. Davy, found that 1000 parts or bushels of the vegetables mentioned in this table, contained of,

Starch	Sugar	Gluten	Total	Bushels	Of
13	119	4	136	864	Mangel-Wurtzel
9	51	2	62	540	Ruta-Baga
41	24	8	73	800	Cabbage at 9 pr. bu.
178	17	35	230	180	Potatoes
501	22	35	558	27	Peas
426	0	103	529	221/2	Beans

Therefore the crops raised per acre by Mr. Cooper being

Contained of nutriment, bushels of

Starch	Sugar	Gluten	Total	Bushels	Prices
11	103	3	117	864	25 Cents per bushel
5	27	1	33	1900	12
33	19	6	58	1600	14
32	3	6	41	500	43
131/2	1/2	1	15	200	104
93/4	0	21/4	12	207	98

If of Mangel-Wurtzel, we can raise 864 bushels per acre, containing 136 parts, of nutriment, and the root be worth 25 cents per bushel, relative crops and prices will be found below, in a line with the other crops, founded upon the nutriment contained in each.

By taking this view of Mr. Cooper's crops, it will be seen that the acre of land cultivated in Mangel Wurtzel produced twice the quantity of *nutritive substance* contained in either of the others, and that nearly all of *this* was saccharine matter. With this principle, in the form of sugar, trials have been successfully made in England to fatten hogs, calves and cattle. And, next to gluten, it is known to be the most nutritious vegetable production. Of these experiments with sugar, we will insert enough, in the next number of this work, to convey precise impressions as to the value of that principal in food. And we will then likewise give an account of the cultivation of Mangel Wurtzel at St. Helena, in support of the opinion that this root may be more successfully cultivated than any other in the States south of New-York; wherein the summer heat and drought are usually so protracted, as to prevent our raising crops of Turnips, Ruta-Baga or Potatoes, with equal certainty, or when successful, in as profitable quantity.

By the table, it appears that an acre of land will produce 846 bushels of Mangel-Wurtzel, containing 117 bushels of nutriment; and by calculation it will be found that an acre must produce, in order to be as profitably employed, if in Ruta Baga, about 1900 bushels; in cabbages at 9 heads per bushel, about 1600 bushels—in Potatoes about 500 bushels—in Peas or Beans about 200 bushels—crops that we cannot expect to obtain from an acre of land, since those made by Mr. Cooper fell so far short of them; although raised with the same care that produced the crop of Mangle Wurtzel. We submit these reflections confessedly, without much experience either in the cultivation, or use of these vegetables in feeding stock. But we have seen enough of both, to predispose us to believe that Mangel Wurtzel as a crop, is not only more certain in this climate, but more valuable than any other root. We have seen hogs, sheep, calves and cattle, prefer it to Ruta Baga. Bushel for bushel, we cannot doubt that it is twice as nutritious as that valuable turnip. Sir Humphrey Davy has ascertained that it contains twice as much soluble matter, and that their several principles bear very nearly the same relation, as the whole. That more bushels can be raised per acre, may be fairly concluded from the experiment of Mr. Cooper. If then, the crop is more certain, more nutritious, otherwise much larger, and always preferred by live stock, why shall not farmers prefer its cultivation to that of Ruta Baga, or Potatoes?

[*Edit. Am. Farmer.*]

For the American Farmer.

ON DEEP PLOUGHING AND THE CULTIVATION OF INDIAN CORN.

MR. SKINNER—You have regretted to me that you did not receive more communications from North Carolina, a state from which you numbered so many respectable patrons to your paper.—It is to be lamented that there is not more interest felt and displayed in this state on the important subject of agricultural improvement; more especially so, when it is considered that North Carolina is almost entirely Agricultural, as the number of those engaged in other pursuits, can be said to bear hardly any proportion to the vast majority engaged in the cultivation of the Earth. Why does not this state emulate the noble examples set by Massachusetts and New York? who have so munificently patronized agriculture; who have by Legislative acts, given new life and energy to agricultural improvement, and what is not to be disregarded, added highly in the publick eye to its importance and respectability, by the fact that their most distinguished citizens were the most forward to promote so laudable an object. If there is a state in the Union where Agriculture eminently deserves to be encouraged and patronised. it is in this, where nature has been so liberal of her gifts—a highly diversified, but generous soil and varied climate, offer to the cultivator, as a rich reward for his toils, the most valued productions, either for sustenance, commerce, or manufactures—and the numerous Rivers which intersect the state, are so many facilities, if their navigation was skilfully improved, for conveying those products to ready markets. Let the motto of every Carolinian be, "Honour the Plough", and let us duly appreciate the great natural advantages we enjoy, and skilfully improve them, and we shall soon reap the rich harvest of Individual Wealth, State Prosperity and State Importance.

But to return to the subjects of this communication, which is to offer some remarks on DEEP PLOUGHING, and the cultivation of Indian Corn. Several of your late numbers have contained remarks as to the best modes of ploughing and cultivating corn, and as there appears to be a difference of opinion among your correspondents, I am induced to offer you mine, sanctioned by experience.—The most important point to be attended to in the cultivation of Indian corn, and upon which the success of all other operations depends, is deep ploughing. The Maize is a "little tree", and has roots correspondent to its size, which strike deep into the earth for sustenance, and hence require a deep stirred soil for this purpose. But how is deep ploughing to be most easily and effectually attained? I answer by cultivating corn in ridges and furrows. By the aid of these, we are enabled to stir a soil much deeper, with the same draught, than we could do upon a flat surface, and in less time too. This is an advantage gained by the position of ridges and furrows—it is very important, and one which I suspect few have rightly considered. If I were asked what was the first and cardinal principle to be steadily kept in view, in the improvement of land, I should answer, *the gradual deepening of the soil.* I would rather dispense with manuring than deep ploughing, because a soil that was once originally good, may be brought back to its pristine fertility, (however exhausted) by deep ploughing, rest and change of crops without the aid of animal manure. Let us suppose a field in the position of ridges and furrows—the ridges five and a half feet apart, from centre to centre, with deep and wide water furrows between them, and that it is to be broken up for Indian corn. I would proceed by reversing the ridges & making the new ridge over the old water furrow; in doing this, much labour is saved in plouging, because the deep water furrow enables the plough to cut off a wide slice* on each side of it, by which it is filled, without needing itself a *touch of the plough share*, leaving a strip of the old ridge, so narrow, that a large trowel-hoe-† plough with two mould boards, may split it. And thus three furrows reverse ridges of five and a half feet wide. The old water furrow enables the ploughing to be done *deeper* than could otherwise be effected, as it is a receptacle for the two slices by which it is filled; and these

* Slice means the earth raised and turned over by the plough into a furrow.

Let furrow be appropriated to the space in which the plough moves. And the small hollows that appear between the slices when a ridge is ploughed, may be termed *seams*

† See 2d vol. of the American Farmer, pages 195 and 349, for this implement.

leave wide and deep furrows, to receive each a moiety of the residue of the old ridges. The deep ploughing, and complete subversion of the sod, produced by the strength of three horses, with the advantage of the water furrow to receive the slices, bury seeds so deep, that few can pierce the tegument, which greatly facilitates the culture of the corn crop. If the ploughing has been well executed according to the mode just described, it will be found by running a stick into the centre of the new ridge that, it will penetrate a mass of loosened earth ten or twelve inches deep, before it reaches the hard pan below, and precisely too in the place where the Indian corn is to stand and grow, which gives fine scope for its roots to push forth deep and vigorously in every direction; and should there have been turned under a good coat of vegetable matter, it is buried so low by means of the deep and wide water furrow, which is a receptacle for it, as not to be disturbed in the after cultivation; and moreover, the corn is enabled to be planted, and to sprout in a bed of clean earth above it. By the advantages of high ridges and deep furrows, you not only gain a much deeper tilth, but you do the work in less time, (by reversing five and a half feet ridges at three slices,) than the same ground could be ploughed by flushing it into a flat surface.

Planting commences by opening a furrow in the centre of each ridge, by a trowel-hoe-plough having two mould boards, and I endeavour to have the furrow as deep as practicable, without disturbing the vegetable cover turned under below, in order that the corn may be planted deep. My reasons for deep planting are these: when we first commenced the system of ridging in this section of the state, we committed the error of not opening the ridge deep enough, and of planting the corn too high; the consequence was that the corn did not take good root, that when it grew large, it fell down by its own weight, and that every gust of wind prostrated it injuriously. But since it has been planted deeper, much labour is saved in putting dirt† to the corn, for if there is a mass of loosened earth around, the roots will take a wide and sure hold on the soil and will stand up well.—I have a machine for covering the seed corn which effects a great saving of labour. With it you could cover as much corn per day, if drawn by a brisk walking horse as ten hands can drop; it is of quadrangular shape, light and easily managed by a boy—the fore part consisting of teeth, knocks off all the clods that may be found on the ridge, whilst the hinder part covers the corn with the loosened earth, and all done at one stroke of the machine. It is equally well adapted to cover all other drilled crops, such as peas, cotton seed, sweet and Irish potatoes, &c. As soon as the corn is fairly up, the cultivator is introduced, an implement which cannot be too much valued by those who raise drill crops. It is drawn by one horse, penetrates to the depth of six inches, (where the ground has been previously deeply ploughed,) effectually stirs and loosens the earth, destroys grass and without exposing the soil to the sun. After the cultivators have gone over the corn, they lie by until the grass begins to appear, then they are again introduced, the hoe following.

But the hoe work is light, as the hoers have only to weed about four inches wide along the line of the corn, on the centre of the ridge; boys of twelve and fifteen years old, easily keep up with the grown labourers at this business. The cultivators at one stroke clean the ground, from near the corn out to the edge of the middle water furrow (and this middle furrow is kept open and clean by the trowel-hoe plough) so that only two strokes are run with the cultivators between each row of corn. The corn is then left to grow until it gets about waist high, which will be about the 10th or 15th of June, it then receives the only ploughing which is given it during its cultivation. Agreeing with "Furius Cresinus," in one of your late numbers, "I dare not dispense with ploughing altogether in the cultivation of Indian corn," although in dry summers, I believe the cultivators would be sufficient to make the crop, with the necessary hoe work after planting. This ploughing is done with a mould board plough, drawn by two horses, and only one furrow is run on each side of of the corn, with the mould board next the corn. This furrow is run so far from the corn, that the earth raised by the mould board, will not quite reach the corn, but be left on each side of it, so as to form a narrow trough on the ridge along which it stands; the hoes follow for the second and last time, and chop what grass may be found along the line of the corn, and level the ridge by filling up the trough left by the ploughing. Arator observes in pages 102 and 106, "this ploughing being the only deep one received by the corn after it is planted, being bestowed upon it whilst it is young, and its roots short, and being run near a foot from it, the roots of the corn by this mode of culture, wholly escape injury, and the effects of drought on the plant being thus diminished, its product is increased." Again, "Its roots are never cut in one direction, and this great depth of tilth thus early obtained, by superceding the occasion for *deep ploughing* in the *latter period of its growth*, saves them in the other." More corn has been destroyed by ploughing it too late than by any other mode whatever. It has frequently pained me to behold the plough introduced into the fields of corn just shooting into tassel—its roots are cut and lacerated, a drought ensues, the corn loses its green and fresh appearance, becomes shrivelled and stationary in its growth, and by this untimely ploughing (unless the season is extremely favourable) dwindles to half a crop.

After the corn is ploughed, the cultivators may again be introduced if necessary, until the corn acquires such size as to shade the ground, and not to be injured by any grass that may appear. It should have been observed that the trowel-hoe-plough, with two mould boards, is occasionally run once in the middle of each row, to keep open the water furrow. Our ridges are laid off on a horizontal level, and it is necessary that the water furrow, be kept deep and wide by the trowel-hoe-plough, to hold superfluous rain, and thereby prevent the soil from washing—Of this implement so indispensable in the system of ridging, I would remark that by laying aside the coulter on the point of the hoe, and by substituting a strong rod to pass through the hoe and the beam, and keyed above, that it works much better; in all my trials, I found the coulter a complete incumbrance, and was almost the cause of my despairing of the use of an implement, without which I would abandon the ridge system. In the hope that some of the hints contained in this communication, may be useful to the patrons of your high valued paper in this State, where the mode of cultivating corn, herein recommended, is rapidly spreading.

I subscribe myself, your's, &c.

GEO. W. JEFFREYS.

Person County, N. C.

† There never was a more absurd practice in Southern Agriculture, than the old one of hilling up corn with hoes at the time of "laying by the corn." This practice consisted in making a large conical hill immediately around the stalk of the corn, by taking the dirt with broad hoes from a space of two or three feet circumference around the stalk; which was in fact taking the dirt from the place where there was the greatest mass of roots, and putting it where it was to do an injury by stifling those prop shoots which, the stalk puts forth at the surface of the ground to support it against winds. In deep and well pulverised ground, the greatest ramification of corn roots will be found at some distance from the stalk, and there is no necessity under such circumstances, to aid the stalk by a hill of dirt immediately around it, as it will in such a prepared soil, if let alone, deep root itself. —See this practice exposed in Thomas Moore's work on "The errors of American Agriculture."

THE FARMER.

BALTIMORE, FRIDAY, APRIL 27th, 1821.

☞ The Index, is unavoidably delayed a few days longer, owing to our Printer having to get some additional type: we have studied to make it full, and we hope it will be found satisfactory.

Bread stuffs and grain have during the past week experienced some rise in price, as will be seen by the present quotations.

PRICES CURRENT.

Flour, from the wagons, $4 12½—*Whiskey*, from do 24 cents per gallon—*Hay*, per ton 16 to $17—*Straw*, 7 to $8—Wheat, White 85 to 87 cts—Red, do 75 80—White *Corn*, 30 to 31—yellow, do 32 to 33—*Rye*, 37½—*Oats*, wharf, 22 to 25 cents—*Barley*, a cargo of 1300 bushels sold the last week for 30 cents per bushel—*Cod fish*, per quintal, wholesale $3, retail do. $4—N. Eng. *Beans* per bushel, $1 12½—ditto *Peas*, 75 cents—*Plaster* in stone $6 per ton—ditto ground $8 pr do; do do in bbls. $1 37½—do. do. pr bushel 33 cts—N. O. *Sugar*, 7 50 to 10—Muscovado, do. $7 50 to 9 25—American *White Lead*, $12 50—Ground, do. $13 a 14—*Linseed Oil*, 75 cts—*Feathers*, 40 to 45 cts—*Potatoes*, N. Eng. pr bushel, 75 cts—*Cotton*, Upland, good quality, 12 to 14 cts—very dull—*Shad*, new, $6—*Herrings*, $2 75, declining—Fine *Salt*, wholesale, 42 to 45—Ground Allum do 46 to 48—St. Ubes, 50—Cadis, 38 to 40—retail do.—Turks' Island, 75—Cadis do, 60—Ground Allum, 60—fine, 60.

Maryland Tobacco—*Sales present week*—A few hhds very fine from St. Mary's Co 6 25 to $7 50—do do. good quality. 4 to $5—Seconds, 2 50 to $3—E. S. do. good quality, 4 to $5 50—Seconds, $3—inferior, no sales—Wagon Tobacco, none in market—Patuxent, do.

Virginia Tobacco, 2 hhds, new crop, sold the last week for $6.

Kentucky Tobacco, 20 hhds new crop, $5 75.

The prices of the other articles as stated last week.

PUBLISHED BY JOHN S. SKINNER.